

## SESSIÓ 3

### Programació TdR STEAM amb ArduinoBlocks

Comparació de diferents formes de programació:

- Arduinoblocks:
  - Blocs: Entrades/Sortides
  - Blocs: Sensors/Actuadors
- Arduino IDE

The image shows a side-by-side comparison of two programming environments for an Arduino. On the left is the ArduinoBlocks interface, which uses a block-based programming style. On the right is the Arduino IDE, which uses a text-based programming style. Arrows connect the visual blocks in ArduinoBlocks to their corresponding code lines in the IDE. Three callout boxes identify specific components: 'ArduinoBlocks (Entrada/Salida)' points to the 'Escribir digital' blocks; 'ArduinoBlocks (Sensores/Actuadores)' points to the 'Led' blocks; and 'Arduino IDE (codi)' points to the code in the IDE window.

**ArduinoBlocks (Entrada/Salida)**

**ArduinoBlocks (Sensores/Actuadores)**

**Arduino IDE (codi)**

```
void setup()
{
  pinMode(13, OUTPUT);
}

void loop()
{
  digitalWrite(13, HIGH);
  delay(500);
  digitalWrite(13, LOW);
  delay(500);
}
```

## Exemple de la pràctica A01.3.

The screenshot shows the ArduinoBlocks web editor interface. The browser address bar displays `arduinoblocks.com/web/project/editor/341282`. The page title is "Primera practica". The left sidebar lists various categories of blocks, including "Lógica", "Control", "Matemáticas", "Texto", "Variables", "Listas", "Funciones", "Entrada/Salida", "Tiempo", "Puerto serie", "Bluetooth", "Sensores", "Actuadores", "Pantalla LCD", "Pantalla OLED", "Memoria", "Motor", "Motor-Shield", "Keypad", "Reloj RTC", "GPS", "Tarjeta SD", "MQTT", "Blynk", "NeoPixel", "RFID", "LedMatrix 8x8", "MP3", and "Domótica".

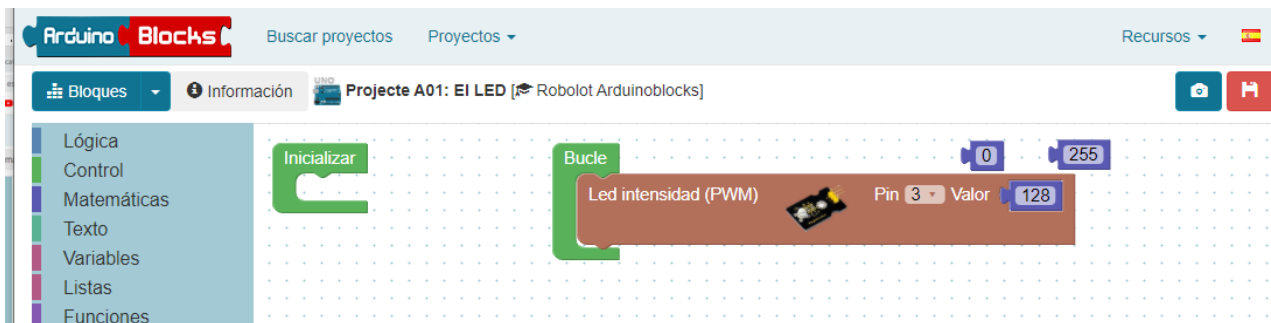
The main workspace contains the following code blocks:

- Inicializar** block.
- Bucle** block containing:
  - repetir** block with a value of **5** veces.
  - hacer** block containing:
    - Led** block: Pin 12, Estado ON.
    - Esperar** block: 500 milisegundos.
    - Led** block: Pin 12, Estado OFF.
    - Esperar** block: 500 milisegundos.
  - Led** block: Pin 13, Estado ON.
  - Esperar** block: 4000 milisegundos.
  - Led** block: Pin 13, Estado OFF.

The bottom of the screen shows the Windows taskbar with icons for File Explorer, Edge, Chrome, and other applications.

## Modulació PWM

Permet generar un senyal “analògic” mitjançant una sortida digital. Utilitzarem un sistema de codificació de 8 bits (en el sistema binari:  $2^8 = 256$ , per tant, del 0 al 255).



## Com fer un programa utilitzant variables.

